

IN THE CLAIMS:

Cancel Claims 22 and 23 without prejudice, amend Claim 21 as follows and add Claims 37-39:

17. (Previously added) An indicator for plasma sterilization comprising an ink containing

- at least one type of colorless chromogenic fluoran pigment,
- a coloring assistant comprising at least one compound having a dithiocarbamyl group, and
- a binder for base material,

wherein said indicator is formed to undergo color tone change by hydrogen peroxide low temperature plasma sterilization.

18. (Previously added) The indicator of Claim 17, wherein said coloring assistant additionally includes at least one compound having a mercapto group.

19. (Previously added) The indicator of Claim 17, wherein said at least one compound having the dithiocarbamyl group exhibits low coloration promoting property in hydrogen peroxide vapor.

20. (Previously added) An indicator for plasma sterilization, comprising

- at least one type of colorless chromogenic fluoran pigment,
- a coloring assistant,

a binder, and  
a discoloration preventing agent for pigment colored by hydrogen peroxide  
plasma sterilization and comprising a polyphenol compound,  
wherein the color tone change of the indicator is allowed to occur by the  
hydrogen peroxide low temperature plasma sterilization.

21. (Currently Amended) ~~The~~ An indicator of ~~Claim 17~~, additionally for plasma  
sterilization comprising an ink containing  
at least one type of colorless chromogenic fluoran pigment,  
a coloring assistant comprising at least one compound having a dithiocarbamyl  
group,  
a binder for base material, and  
a discoloration preventing agent for pigment colored by the hydrogen peroxide  
plasma sterilization and comprising a polyphenol compound,  
wherein said indicator is formed to undergo color tone change by hydrogen  
peroxide low temperature plasma sterilization.

Claims 22-23. Canceled.

24. (Previously added) The indicator of Claim 17, wherein said fluoran pigment is  
selected from at least one of

3,6-dimethoxyfluoran;

3-diethylamino-7-chlorofluoran;

3-diethylamino-benzo(a)fluoran;

4-amino-8-diethylamino-benzo(a)fluoran;  
4-benzylamino-8-diethylamino-benzo(a)fluoran;  
2-amino-8-diethylamino-benzo(a)fluoran;  
2-mesidino-8-diethylamino-benzo(c)fluoran;  
3-(N,N-diethylamino)-7-(N,N-dibenzylamino)fluoran;  
3-diethylamino-7-alkyl(C8)aminofluoran;  
2-(N-methyl-N-phenylamino)-6-(N-p-tolyl-N-ethylamino)fluoran;  
3-pyrrolidono-7-(N,N-dibenzylamino)fluoran;  
3-pyrrolidino-7-cyclohexylaminofluoran;  
3-diethylamino-7-cyclohexylaminofluoran;  
3-diethylamino-7-cyclohexyl-N-benzylaminofluoran;  
2-anilino-3-methyl-6-diethylaminofluoran;  
2-anilino-3-methyl-6-(N-ethyl-p-toluidino)fluoran;  
2-p-toluidino-3-methyl-6-(N-ethyl-p-toluidino)fluoran;  
3-(N-cyclohexyl-N-methylamino-6-methyl-7-anilinofluoran;  
3-dibutylamino-7-(o-chloroanilino)fluoran;  
3-dibutylamino-7-fluoroanilinofluoran; and  
3-diethylamino-6-chloro-anilinofluoran.

25.(Previously added) The indicator of Claim 24, wherein said coloring assistant  
is selected from at least one of

tetramethylthiuram monosulfide;

tetramethylthiuram disulfide;  
tetraethylthiuram disulfide;  
tetra-n-butylthiuram disulfide;  
N,N'-dimethyl-N,N'-diphenylthiuram disulfide;  
dipentamethylenethiuram monosulfide;  
dipentamethylenethiuram disulfide;  
dipentamethylenethiuram tetrasulfide;  
p-xylylene bis(N,N-diethyldithiocarbamate);  
2-benzothiazolyl diethyldithiocarbamate; and  
4-dimethylaminobenzylidene rhodamine.

26.(Previously added) The indicator of Claim 17, wherein said coloring assistant  
is selected from at least one of

tetramethylthiuram monosulfide;  
tetramethylthiuram disulfide;  
tetraethylthiuram disulfide;  
tetra-n-butylthiuram disulfide;  
N,N'-dimethyl-N,N'-diphenylthiuram disulfide;  
dipentamethylenethiuram monosulfide;  
dipentamethylenethiuram disulfide;  
dipentamethylenethiuram tetrasulfide;  
p-xylylene bis(N,N-diethyldithiocarbamate);

2-benzothiazolyl diethyldithiocarbamate; and  
4-dimethylaminobenzylidene rhodamine.

27.(Previously added) The indicator of Claim 18, wherein said mercapto-containing compound is selected from at least one of

2-mercaptobenzothiazole;  
2-mercaptobenzoimidazole;  
2-mercaptobenzoxazole;  
3-mercapto-1,2,4-triazole;  
3-mercapto-4-methyl-4H-1,2,4-triazole;  
2-mercaptothiazoline;  
5-methyl-1,3,4,-thiadiazole-2-thiol;  
1-phenyl-5-mercapto-1H-tetrazole;  
2-amino-5-mercapto-1,3,4-thiadiazole;  
2,5-dimercapto-1,3,4-thiadiazole;  
5-mercapto-1-methyltetrazole; and  
mercaptosuccinic acid.

28.(Previously added) The indicator of Claim 27, wherein said dithiocarbamyl-containing compound is selected from at least one of

tetramethylthiuram monosulfide;  
tetramethylthiuram disulfide;

tetraethylthiuram disulfide;  
tetra-n-butylthiuram disulfide;  
N,N'-dimethyl-N,N'-diphenylthiuram disulfide;  
dipentamethylenethiuram monosulfide;  
dipentamethylenethiuram disulfide;  
dipentamethylenethiuram tetrasulfide;  
p-xylylene bis(N,N-diethyldithiocarbamate);  
2-benzothiazolyl diethyldithiocarbamate; and  
4-dimethylaminobenzylidene rhodamine.

29. (Previously added) The indicator of Claim 28, wherein said binder is selected from at least one of

cellulose acetate;  
cellulose butyrate;  
cellulose nitrate;  
ethyl cellulose;  
hydroxypropyl cellulose;  
poly(vinyl acetate);  
vinyl acetate/vinyl pyrrolidone copolymer;  
poly(vinyl butyral); and  
a styrene/acrylonitrile copolymer.

30.(Previously added) The indicator of Claim 17, wherein said binder is selected from at least one of

cellulose acetate;  
cellulose butyrate;  
cellulose nitrate;  
ethyl cellulose;  
hydroxypropyl cellulose;  
poly(vinyl acetate);  
vinyl acetate/vinyl pyrrolidone copolymer;  
poly(vinyl butyral); and  
a styrene/acrylonitrile copolymer.

31.(Previously added) The indicator of Claim 24, wherein said binder is selected from at least one of

cellulose acetate;  
cellulose butyrate;  
cellulose nitrate;  
ethyl cellulose;  
hydroxypropyl cellulose;  
poly(vinyl acetate);  
vinyl acetate/vinyl pyrrolidone copolymer;

poly(vinyl butyral); and  
a styrene/acrylonitrile copolymer.

32.(Previously added)The indicator of Claim 25, wherein said binder is selected  
from at least one of

cellulose acetate;  
cellulose butyrate;  
cellulose nitrate;  
ethyl cellulose;  
hydroxypropyl cellulose;  
poly(vinyl acetate);  
vinyl acetate/vinyl pyrrolidone copolymer;  
poly(vinyl butyral); and  
a styrene/acrylonitrile copolymer.

33.(Previously added)The indicator of Claim 26, wherein said binder is selected  
from at least one of

cellulose acetate;  
cellulose butyrate;  
cellulose nitrate;  
ethyl cellulose;  
hydroxypropyl cellulose;



poly(vinyl acetate);  
vinyl acetate/vinyl pyrrolidone copolymer;  
poly(vinyl butyral); and  
a styrene/acrylonitrile copolymer.

34.(Previously added) The indicator of Claim 20, wherein said polyphenol compound is selected from at least one of

diphenol acid;  
phenolphthalein;  
bis(4-hydroxyphenyl)propane;  
1,1-bis(4-hydroxyphenyl)cyclohexane;  
bis(4-hydroxyphenyl)sulfone;  
bis(4-hydroxyphenyl)sulfide;  
9,9-bis(4-hydroxyphenyl)fluorene;  
4,4'-(1- $\alpha$ -methylbenzylidene)bisphenol;  
 $\alpha$ ,  $\alpha'$ -bis(4-hydroxyphenyl)-1,4-diisopropylbenzene;  
4,4'-bisbutylidenebis(3-methyl-6-tertbutylphenol);  
 $\alpha$ , $\alpha$ , $\alpha'$ -tris(4-hydroxyphenyl)-1-ethyl-4-isopropylbenzene;  
oligomers of 4-phenylphenol and formaldehyde; and  
polyvinylphenol(poly(p-hydroxystyrene)).

35.(Previously added) The indicator of Claim 17, comprising

0.1 to 1 part of said pigment,

0.5 to 6 parts of said coloring assistant

10 to 30 parts of said binder, and

70 to 85 parts of a solvent.

36.(Previously added) The indicator of Claim 17 wherein polyethylene synthetic paper is used as the base material.

37. (new) The indicator of Claim 21, wherein said coloring assistant additionally includes at least one compound having a mercapto group.

38.(new) The indicator of Claim 21, wherein said at least one compound having the dithiocarbamyl group exhibits low coloration promoting property in hydrogen peroxide vapor.

39. (New) The indicator of Claim 21, wherein said pigment consists of fluoran pigment.